IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

	Jerzy Kuczynski	Docket No.	2156-340A
Serial No.	10/500,635	Examiner:	Joshua Zimmerman
Filing Date:	March 30, 2005	Art Unit:	2854

Title: Method for Production of a Flexographic Printing Plate and Flexographic Printing Plate Obtained According to Said Method

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF UNDER 37 C.F.R. SECTION 41.37

Applicant is filing a Notice of Appeal from the last decision of the Examiner concurrently herewith. Applicant submits herein an Appeal Brief for the above captioned application pursuant to 37 C.F.R. Section 41.37.

Please charge Deposit Account No. 50-0447 in the amount of $540, plus any deficiencies for the filing of the Appeal Brief.

1. Real Party in Interest:

The owner of record of the application under appeal and the real party in interest is MacDermid Graphic Arts, SAS, a corporation of the country of France, as a result of an assignment dated September 27, 2004 which has been recorded at the U.S.P.T.O. at Reel 015842, Frame 0387.

2. Related Appeals and Interferences:

There are no related appeals, interferences, or judicial proceedings known to Appellant, Appellants' legal representative or Assignee.

3. **Status of Claims**

Claim 1-17 and 19-29: Pending

Thus, claims 1-17 and 19-29 are currently pending and are subject of the instant appeal.

All of the pending claims 1-17 and 19-29 have been at least twice rejected. A copy of pending claims 1-17 and 19-29 is provided in the Claim Appendix.

4. **Status of Amendments:**

Claims were amended with the applicants' response filed on February 9, 2009 and those amendments have been entered by the Examiner in the ordinary course.

5. **Summary of the Claimed Subject Matter:**

The invention is directed to a process for producing a flexographic printing plate. More particularly the invention is directed to pending independent claim 1:

> **Claim 1.** A method for the producing a flexographic printing plate, which has a base layer and a solid layer of a light sensitive material attached to the base layer **(page 1, lines 4-10, page 2, lines 1-4)**, comprising producing an image in the layer of the light sensitive material by selective crosslinking, by insolating zones which are to be crosslinked with amplitude modulated laser light **(page 1, lines 4-10)** having a wavelength of 390 to 410 nm **(page 1, lines 29-32)**, and sweeping the layer of the light sensitive material with the amplitude modulated laser light to produce crosslinked zones in the layer of light sensitive material without the use of a mask **(page 2, lines 27-32)**, and, thereafter, removing zones which are not crosslinked to create the image in the solid layer of the light sensitive material **(page 1, lines 35-37)**, said solid layer of light sensitive material having a thickness between 0.5 to 2mm **(page 2, line 20)** and including at least one photoinitiator sensitive to said laser light at said wavelength **(page 3, lines 1-**

5), wherein the photoinitiator undergoes a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material **(page 3 amended, lines 6-10)**.

Claim 2. **(page 1, lines 33-34)**

Claim 3. **(page 1, lines 35-37)**

Claim 4. **(page 3, lines 20-27)**

Claim 5. **(page 2, lines 33-37)**

Claim 6. **(page 3, lines 6-10)**

Claim 7. **(page 3, lines 6-10)**

Claim 8. **(page 3, lines 6-10)**

Claim 9. **(page 3, lines 6-10)**

Claim 10. **(page 3, lines 11-14)**

Claim 11. **(page 3, lines 11-14)**

Claim 12. **(page 3, lines 15-17)**

Claim 13. **(page 3, lines 28-29)**

Claim 14. **(page 2, lines 22-24)**

Claim 15. **(page 1, lines 33-34; page 4, lines 31-33)**

Claim 16. A flexographic printing plate obtained according to claim 1, comprising tubular sleeve on a rigid support having a composite base and, attached on the base, the solid polymer layer of light sensitive material **(page 2, lines 1-4)**, wherein the layer of light sensitive material has a thickness between 0.5 to 2 mm **(page 2, line 20)** and contains at least one photoinitiator sensitive to laser light having a wavelength of 390 to 410 nm **(page 2, lines 27-28; page 3, lines 1-5)**, wherein the photoinitiator is capable of undergoing a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleached light sensitive material permits a progressively deeper penetration of light into the light-sensitive layer in order to provide uniform cross-linking throughout the thickness of the layer of light sensitive material **(page 3 amended lines 6-10)**.

Claim 17. **(page 2, line 18)**

Claim 19. **(page 4, lines 21-23)**

Claim 20. **(page 4, lines 24-26)**

Claim 21. **(page 4, lines 24-26)**

Claim 22. **(page 2, lines 21-22)**

Claim 23. **(page 4, lines 27-30)**

Claim 24. **(page 2, lines 22-24)**

Claim 25. **(page 4, lines 33-34)**

Claim 26. **(page 4, lines 34-35)**

Claim 27. **(page 4, lines 34-36)**

Claim 28. A method for producing a flexographic printing plate, which has a base layer and a solid layer of a light sensitive material attached to the base layer **(page 1, lines 4-10) (page 2, lines 1-4)**, comprising producing an image in the layer of the light sensitive material by selective crosslinking, by insolating zones which are to be crosslinked with amplitude modulated laser light **(page 1, lines 4-10)** having a wavelength of 390 to 410 nm **(page 1, lines 29-32)**, and sweeping the layer of the light sensitive material with the laser light to produce crosslinked zones in the layer of light sensitive material without the use of a mask **(page 2, lines 27-32)**, and, thereafter, removing zones which are not crosslinked to create the image in the solid layer of the light sensitive material **(page 1, lines 35-37)**, said solid layer of light sensitive material having a thickness between 0.5 to 2 mm **(page 2, line 20)** and including at least one material selected from the group consisting of high molecular weight polymer, functionalized monomers or oligomers and at least one photoinitiator **(page 2, lines 33-37)**, wherein the photoinitiator is sensitive to said laser light at said wavelength and is capable of producing a bleaching effect during a photoreaction in response to said laser light, wherein the bleaching ensures transparency of the crosslinked zones to the laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material **(page 3, amended lines 6-10)**.

Claim 29. A flexographic printing plate obtained according to claim 28, comprising a tubular sleeve on a rigid support having a composite base and, attached on the base, the layer of solid polymer light sensitive material **(page 2, lines 1-4)**, where the layer of light sensitive material has a thickness between 0.5 to 2 mm **(page 2, line 20)** and contains at least one photoinitiator sensitive to laser

light having a wavelength of 390 to 410 nm **(page 2, lines 27-28; page 3, lines 1-5)**, wherein the photoinitiator is capable of undergoing a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleached light sensitive material permits a progressively deeper penetration of the light into the light sensitive layer in order to provide uniform cross-linking throughout the thickness of the layer of light sensitive material **(page 3, amended lines 6-10)**.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Whether claims 1, 2, 5, 13, 15-17, 19, 22-25, 28 and 29 are obvious under 35 U.S.C. 103(a) over alleged admitted prior art in view of Teng (U.S. 6,541,183).

II. Whether claims 3, 4 and 27 are obvious under 35 U.S.C. 103(a) over alleged admitted prior art in view of Teng and Cohen (U.S. 3,264,103).

III. Whether claims 6-12 and 26 are obvious under 35 U.S.C. 103(a) over alleged admitted prior art in view of Teng, and Kuczynski, et al (FR 2803245 or U.S. 2003/0054153).

IV. Whether claim 19 is obvious under 35 U.S.C. 103(a) over alleged admitted prior art in view of Teng and Robinson et al (U.S. 5,795,647).

V. Whether claims 20, 21, and 26 are obvious under 35 U.S.C. 103(a) over alleged admitted prior art in view of Teng and Francille et al (U.S. 5,706,731).

7. ARGUMENT

I. Claims 1, 2, 5, 13, 15-17, 19, 22-25, 28 and 29 are patentable over alleged admitted prior art and Teng.

It is very clear that the cited art, to the extent that it is actually effective prior art, does not reveal any of the following claimed attributes:

1. Use of violet laser light with a wavelength of 390 nm to 410 nm to selectively cure a relief in a photopolymer printing plate.

2. Use of violet laser light with a wavelength of 390 nm to 410 nm to cure a photopolymer without use of a mask.

3. Use a photoinitiator, with a laser direct curing system, which bleaches the photopolymer to make itself transparent to the laser light thereby quickening the curing process.

With regard to point (1), the Examiner looks to Teng for a suggestion to use a violet diode laser (about 410 nm) in exposing a photopolymer. However, Teng is directed to the fabrication of an offset printing plate which uses a flat surface (without relief) to print using variations in hydrophobicity and hydrophilicity across the surface of the plate. The lasers used by Teng are used to create this variation of affinity for water or oil across the surface of the plate, not to create a relief using difference in thermal viscosity. Thus an artisan reading Teng would not be held to use the laser recommended by Teng in the process of the claimed invention because they are used to create different effects. This point is supported by the declaration of Christian Decker (previously submitted and attached to the evidence appendix) who is a third party skilled artisan.

With regard to point (2), the Examiner turns to page 1, lines 17-19 as alleged admitted prior art revealing use of a violet laser without a mask to cure a relief photopolymer printing plate. The referred to disclosure is as follows:

> "According to another method, the image is produced by direct writing of the photo-polymer plates using amplitude modulated ultraviolet sources. These sources can be lasers typically operating a wavelengths of 310 to 370 nm."

In the applicants view, this is not admitted prior art at all. It is merely a suggested process that would have disadvantages. Further there is no disclosure of operating without a mask. Lastly, this proposed process cannot be combined with Teng for the above noted reasons.

With regard to point (3), the Examiner turns to the fact that the claimed bleaching property of the photoinitiators is inherent. This position is incorrect and completely unsupportable. Firstly, of course the chosen photoinitiators inherently posses the property of bleaching the photopolymer layer. However to use this to reject the claimed invention is circular logic and incorrect. If the chosen photoinitiators did not inherently posses the ability to bleach the photopolymer (ie. make it transparent as it cures), how else could we accomplish the claimed feature which requires the photoinitiator to bleach the photopolymer as it cures? This is not admitted prior art, it is part of the invention. This part of the invention here consists of the following:

- Discovering that certain, specially chosen, photoinitiators have the ability to bleach (render transparent) a photopolymer layer as it cures.

- Realizing that this newly discovered property can assist in more efficiently curing a thick photopolymer layer.

- Applying the foregoing two newly discovered principles to the manufacture of a thick relief printing plate using a violet laser and no mask to selectively and efficiently cure the layer and create a thick relief image.

As Dr. Decker explains, the particularly chosen acylphosphine oxide photoinitiator provides the distinct advantage of bleaching the layer of light sensitive material and rendering it transparent to enable cross-linking throughout the thickness of the layer of light sensitive material (Decker Declaration, ¶ 4). As further explained by Dr. Decker, the photobleaching effect provided by the acylphosphine oxide photoinitiator allows the radiation to reach the deep-lying areas of samples having a thickness that is considerably large, i.e., a "thickness between 0.5 to 2 mm" and ensures crosslinking throughout the thickness of the layer (Decker Declaration, ¶ 4).

None of the cited references teach or suggest using a photoinitiator that "undergoes a photoreaction under effect of the laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to the laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material," as claimed.

As attested to by Dr. Decker, Teng does not disclose an acylphosphine oxide photoinitiator, nor does Teng disclose any photoinitiator that is capable of bleaching the layer of light-sensitive material (Decker Declaration, ¶ 5). Accordingly, as Dr. Decker explains, the method taught by Teng cannot bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light" (Decker Declaration, ¶ 5).

Moreover, as explained by Dr. Decker, the semi-solid radiation-sensitive layer of Teng is very thin, i.e., about one micrometer (col. 5, line 14) (Decker Declaration, ¶ 6). This thickness is three orders of magnitude smaller than the claimed light-sensitive material, which has a "thickness between 0.5 to 2 mm." As Dr. Decker further explains, reactions induced by light are highly dependent on sample thickness due to the limited penetration of UV light and visible radiation in absorbing media (Decker Declaration, ¶ 6). Thus, one of ordinary skill in the art would not have a reasonable expectation of success to apply Teng's method, which is adapted for crosslinking a very thin layer, to photobleach and crosslink a thick light sensitive layer, i.e., a layer having a "thickness between 0.5 to 2 mm."

The Examiner alleges that AAPA discloses a number of photoinitiators sensitive to the wavelength of light used that were commercially available at the time of the invention at page 3, first paragraph of the specification, and that all of the listed photoinitiators inherently undergo the claimed photoreaction with the claimed bleaching effect.

In the Amendment filed April 16, 2008, the specification and claims were amended to explain that the photoinitiators listed at page 3, first paragraph of the specification undergo a photoreaction under the effect of the laser light to bleach the light sensitive material to render the crosslinked zones transparent to the laser light and to enable cross-linking throughout the thickness of the layer. In the remarks, the Applicants explained that this is an inherent property of the photoinitiators on page 3 of the specification. The Office Action erroneously asserts that this remark amounts to an admission that the newly added language is prior art.

The Office Action's position is completely unfounded. A statement that the newly added language recites an inherent property of the photoinitiators

listed in the specification is not, in any way, an admission that these photoinitiators, with their claimed properties, is *prior art*. In particular, the statement is not, in any way, an admission that using these photoinitiators in the claimed method for producing a flexographic printing blanket is prior art. The language appears in the detailed description of the invention, not in any description of the prior art. Moreover, the Office Action's reliance on this newly added paragraph as grounds for an obviousness rejection is completely improper; the Patent Office is not permitted to use the detailed description of the Applicant's own invention to reject the claims as unpatentable. Accordingly, the Applicants' remarks of April 16, 2008 cannot be considered AAPA, and cannot be relied upon to reject the claims as unpatentable.

Thus, it was left to the inventors here to discover this inherent property, realize the application of this newly discovered property and employ the newly discovered property in the fabrication of a thick relief printing plate without a mask where it could provide concrete advantages.

Lastly, the Examiner cannot properly take "official" notice of the thickness of the claimed plate at 0.5 to 2 mm without support, especially when the Teng reference reveals a substantially thinner layer.

II. Claims 3, 4, and 27 are patentable over alleged admitted prior art in view of Teng and Cohen.

The applicant relies on the arguments noted above in opposition to this rejection.

III. Claims 6-12 and 26 are patentable over alleged admitted prior art, Teng and Kuczynski.

Firstly, the applicants incorporate here the arguments made above regarding the alleged admitted prior art and Teng. The applicants assert that it is improper to compare the lithographic layer of Teng with the compressible layer of Kuczynski. The objective of Kuczynski is to provide a printing plate whose compressibility is not uniform over the entire printing plate ([0018]). Thus, the compressible layer includes monomers that are not activated by the means which cause cross-linking of the copolymer material of the compressible layer ([0062]-[0064]). The monomers and the photopolymer layer in Kuczynski are activated by UV light simultaneously ([0070]).

In Kuczynski, at first, only the compressible layer is crosslinked by heat, isocyanates, electron bombardments or X rays (e.g., pars. [0095], [0190]). In a subsequent step, the printing plate is irradiated by different means, i.e., UV radiation, in order to initiate cross-linking of the compressible layer (par. [00192]). The UV radiation step can take place during the development of the photopolymer layer of the printing plate (pars. [00194]). There is no teaching or suggestion in Kuczynski of using laser light, as claimed. In addition, the compressible layer has a thickness between 0.76 and 6.22 mm, preferably between 1.0 and 2.8 mm (pars. [0225]-[0226]).

In contrast, Teng teaches treating a lithographic layer by irradiation with visible or ultraviolet laser light (col. 1, lines 8-11; col. 5, lines 38-67; col. 10, lines 43-50). The printing plate of Teng is an offset printing plate with a semi-solid layer of about one micron (col. 5, line 14). The semi-solid layer of Teng is very different from the compressible layer of Kuczynski (and the photopolymer layer of this invention) and is not comparable therewith. While Teng teaches using initiators, Teng does not teach the use of bleaching photoinitiators. Bleaching photoinitiators would be completely unnecessary in Teng because of the thinness of the layer to be crosslinked.

The UV light of Kuczynski would not be replaceable with the laser light of Teng, as suggested in the Office Action, because the UV light for the subsequent cross-linking step of the photopolymer layer of the printing plate of Kuczynski must simultaneously activate the monomers which are distributed in the compressible layer. Accordingly, replacing the UV light of Kuczynski with the laser light of Teng would fundamentally alter the principle of operation of the method of Kuczynski, in contravention of MPEP § 2143.01. Therefore, the obviousness rejection cannot be maintained.

Furthermore, the claimed method also provides a photo-crosslinked polymer with a strong elastomeric character. As Dr. Decker attests, such a strong elastomeric character can only be achieved using high molecular weight rubbers bearing reactive double bonds as a starting material (Decker Declaration, ¶ 7). Teng, in contrast, cannot provide a photo-crosslinked polymer with a strong elastomeric character because Teng does not use high molecular weight rubbers bearing reactive double bonds as a starting material, as Dr. Decker explains (Decker Declaration, ¶ 7). Accordingly, Teng cannot render the present claims obvious.

IV. Claim 14 is patentable over alleged admitted prior art, Teng and Robinson

Firstly the comments regarding the allegedly admitted prior art and Teng, as made above, are incorporated here.

In addition Robinson does not properly suggest the claim element. Robinson merely discloses the possibility of extruding photopolymer on a flat metal sheet. The applicant does not dispute this. However, Robinson's teaching does not render obvious the use of extrusion on a round cylinder in the specific process claimed by this invention. As a result this rejection should be withdrawn.

V. Claims 20, 21 and 26 are patentable over the alleged admitted prior art, Teng and Francille.

Firstly, the comments regarding the allegedly admitted prior art and Teng, as made above, are incorporated here.

With regard to claim 20, Francille does not disclose the use of a second sleeve containing an inserted layer for variation of the thickness of the sleeve. Instead Francille merely reveals the possibility of using two sleeves for use in changing sleeves. The purpose of using two sleeves in Francille is different and there is no revelation of an inserted layer for variation of the thickness of the sleeve. Further, since Francelle does not disclose an inserted layer, it cannot disclose a compressible inserted layer (claim 21).

Lastly with regard to claim 26, there is no admitted prior art revealing a plurality of layers of light sensitive material.

CONCLUSION

For all of the foregoing reasons, this application should be allowed to issue. Such relief is earnestly sought.

Respectfully Submitted

John L. Cordani, Reg. No. 37,297
Carmody & Torrance LLP
50 Leavenworth Street
P.O. Box 1110
Waterbury, CT 06721-1110
Telephone: (203) 578-4271

CLAIMS APPENDIX

1. A method for producing a flexographic printing plate, which has a base layer and a solid layer of a light sensitive material attached to the base layer, comprising producing an image in the layer of the light sensitive material by selective crosslinking, by insolating zones which are to be crosslinked with amplitude modulated laser light having a wavelength of 390 to 410 nm, and sweeping the layer of the light sensitive material with the amplitude modulated laser light to produce crosslinked zones in the layer of light sensitive material without the use of a mask, and, thereafter, removing zones which are not crosslinked to create the image in the solid layer of light sensitive material, said solid layer of light sensitive material having a thickness between 0.5 to 2 mm and including at least one photoinitiator sensitive to said laser light at said wavelength, wherein the photoinitiator undergoes a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material.

2. The method according to claim 1, including producing the laser light with a laser source consisting of a bundle of diodes producing laser light at wavelengths around 405 nm.

3. The method according to claim 1, including removing the zones which are not crosslinked by liquefying the zones which are not crosslinked thermally, without using solvents.

4. The method according to claim 3, wherein the light sensitive material not crosslinked by the laser light has a variation in viscosity in a temperature range from 60 to 140^0C, and the zones that are crosslinked melt at a temperature higher than the temperature range.

5. The method according to claim 1, wherein the light sensitive material contains at least one selected from the group consisting of high molecular weight polymers, functionalized monomers or oligomers, photo-initiators, reactive or non-reactive diluents, inhibitors and protective agents, and pigments.

6. The method according to claim 1, wherein the light sensitive material is a photo-polymer containing at least two complementary crosslinking systems.

7. A method according to claim 6, wherein a main crosslinking system is used to create the image in the solid layer of the light sensitive material.

8. The method according to claim 7, wherein a complementary crosslinking system is used to complete the crosslinking and to increase chemical and mechanical resistance.

9. The method according to claim 6, including using a complementary system to generate different compressibilities.

10. The method according to claim 6, including partially crosslinking the photo-polymer to adjust viscosity and prevent cold creep during prolonged storage periods or transport.

11. The method according to claim 6, including the step of pre-sensitizing the photo-polymer with a flash of light before directly writing an image in the layer of the light sensitive material with the laser light.

12. The method according to claim 1, wherein the light sensitive material is a polymer with a hardness between 60 and 70 ShA.

13. The method according to claim 1, including insolating the light sensitive material with an energy in a range from 20 to 1000 mJ/cm^2.

14. The method according to claim 1, including thermally projecting pre-formulated powders onto a support sleeve to produce the plate.

15. The method according to claim 1, including insolating the light sensitive material with a plurality of lasers operating in parallel.

16. A flexographic printing plate obtained according to claim 1, comprising tubular sleeve on a rigid support having a composite base and, attached on the base, the solid polymer layer of light sensitive material, wherein the layer of light sensitive material has a thickness between 0.5 to 2 mm and contains at least one photoinitiator sensitive to laser light having a wavelength of 390 to 410 nm, wherein the photoinitiator is capable of undergoing a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleached light sensitive material permits a progressively deeper penetration of light into the light-sensitive layer in order to provide uniform cross-linking throughout the thickness of the layer of light sensitive material.

17. The flexographic printing plate according to claim 16, wherein the composite base has a thickness in a range from 0.2 to 40 mm.

18. (canceled)

19. The flexographic printing plate according to claim 16, wherein the sleeve includes a compressible layer.

20. The flexographic printing plate according to claim 16, including a second sleeve containing an inserted layer for variation of thickness of the sleeve.

21. The flexographic printing plate according to claim 20, wherein the inserted layer is compressible.

22. The flexographic printing plate according to claim 16, wherein the tubular sleeve is extruded.

23. The flexographic printing plate according to claim 16, wherein the tubular sleeve is produced by rolling an attachment of a plate to a support cylinder or sleeve.

24. The flexographic printing plate according to claim 16, wherein the tubular sleeve is produced by thermally projecting pre-formulated powders onto a support cylinder or sleeve.

25. The flexographic printing plate according to claim 16, wherein the rigid support includes a base made of polyester film.

26. The flexographic printing plate according to claim 16, including a plurality of the layers of light sensitive material.

27. The flexographic printing plate according to claim 16, wherein the flexographic printing plate is etchable with one of water, an aqueous solution under pressure, high temperature, and brushing.

28. A method for producing a flexographic printing plate, which has a base layer and a solid layer of a light sensitive material attached to the base layer, comprising producing an image in the layer of the light sensitive material by selective crosslinking, by insolating zones which are to be crosslinked with amplitude modulated laser light having a wavelength of 390 to 410 nm, and sweeping the layer of the light sensitive material with the laser light to

produce crosslinked zones in the layer of light sensitive material without the use of a mask and thereafter, removing zones which are not crosslinked to create the image in the solid layer of the light sensitive material, said solid layer of light sensitive material having a thickness between 0.5 to 2 mm and including at least one material selected from the group consisting of high molecular weight polymers, functionalized monomers or oligomers and at least one photoinitiator, wherein the photoinitiator is sensitive to said laser light at said wavelength and is capable of producing a bleaching effect during a photoreaction in response to said laser light, wherein the bleaching ensures transparency of the crosslinked zones to the laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material.

29. A flexographic printing plate obtained according to claim 28, comprising a tubular sleeve on a rigid support having a composite base and, attached on the base, the layer of solid polymer light sensitive material, where the layer of light sensitive material has a thickness between 0.5 to 2 mm and contains at least one photoinitiator sensitive to laser light having a wavelength of 390 to 410 nm, wherein the photoinitiator is capable of undergoing a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleached light sensitive material permits a progressively deeper penetration of the light into the light sensitive layer in order to provide uniform cross-linking throughout the thickness of the layer of light sensitive material.

EVIDENCE APPENDIX

Declaration of Christian Decker (attached). previously filed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 10/500,635

Applicant: KUCZYNSKI et al.

Filed: March 30, 2005

TC/AU: 2854

Examiner: Joshua D. Zimmerman

Docket No.: 403125

Customer No.: 23548

Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

DECLARATION UNDER 37 CFR §1.132 OF CHRISTIAN DECKER

Dear Sir:

I, Christian Decker, declare that:

1. I am currently a Research Director at the Centre National de la Recherche Scientifique (CNRS) (National Center for Scientific Research) in Mulhouse, France. I have 25 years of experience in the field of polymerization, curing, and crosslinking reactions induced by UV-visible radiation and lasers, and my laboratory has published over 200 scientific papers and review articles in this field.

2. I have reviewed the referenced patent application and U.S. Patent Publication No. 2003/0036019 to Teng (hereinafter, "Teng"). As one of ordinary skill in the art, I believe I am in a particularly good position to elucidate the differences between the claimed method and the method taught by Teng.

3. The referenced patent application provides a method of producing a flexographic printing plate. The method includes producing an image on a solid layer of light

sensitive material by selective crosslinking, by insolating zones which are to be crosslinked with amplitude modulated laser light having a wavelength of 390 to 410 nm, and sweeping the layer of the light sensitive material with the laser light to produce crosslinked zones. The solid layer of light sensitive material has a thickness between 0.5 to 2 mm and includes at least one acylphosphine oxide photoinitiator[1] sensitive to the laser light.

4. The "acylphosphine oxide photoinitiator" produces initiating free radicals and quickly "undergoes a photoreaction under effect of said laser light to bleach the layer of light sensitive material" so that the "bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material." Thus, the transparent resin obtained allows the radiation to reach the deep-lying areas of samples having a thickness that is considerably large, i.e., a "thickness between 0.5 to 2 mm" and ensures crosslinking throughout the thickness of the layer. Therefore, acylphosphine oxide photoinitiators are very efficient for curing samples with a "thickness between 0.5 to 2 mm."

5. Teng, in contrast, does *not* disclose an acylphosphine oxide photoinitiator. Teng does not disclose any photoinitiator that is even capable of bleaching the layer of light-sensitive material. Accordingly, the method taught by Teng cannot "bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light."

6. Moreover, the semi-solid radiation-sensitive layer of Teng is very thin, i.e., at least one micrometer (col. 5, line 14).[2] This thickness is three orders of magnitude smaller

[1] The instant specification discloses that the photoinitator may be Ciba® Darocur® TPO photoinitiator (page 3, line 4). As shown in the Attached Exhibit A, a product description from Ciba Specialty Chemicals, Ciba® Darocur® TPO photoinitiator is an acylphosphine oxide photoinitator. Therefore, one of ordinary skill in the art at the time the instant patent application was filed would have understood that Ciba® Darocur® TPO photoinitiator meant an acylphosphine oxide photoinitiator.

[2] One of ordinary skill in the art would not interpret the thickness of Teng as reaching as high as "0.5 to 2 mm." Teng relates to offset printing, which one of ordinary skill in the art would understand to require a surface without relief. As shown in the attached Exhibit B (available at www.whatisoffsetprinting.com; 3rd par.), a unique characteristic of offset printing is that the image and non-image areas are on the same surface level. This means that the photosensitive layers in Teng, used for offset printing, are very thin, i.e., on the order of microns.

than the claimed light-sensitive material, which has a "thickness between 0.5 to 2 mm." Reactions induced by light are highly dependent on sample thickness due to the limited penetration of UV light and visible radiation in absorbing media. Thus, one of ordinary skill in the art would not have a reasonable expectation of success to apply Teng's method, which is adapted for crosslinking a very thin layer, to photobleach and crosslink a thick light sensitive layer, i.e., a layer having a "thickness between 0.5 to 2 mm."

7. Furthermore, the claimed method also provides a photo-crosslinked polymer with a strong elastomeric character. Such a strong elastomeric character can only be achieved using high molecular weight rubbers bearing reactive double bonds as a starting material. Teng, on contrast, cannot provide a photo-crosslinked polymer with a strong elastomeric character because Teng does not use high molecular weight rubbers bearing reactive double bonds as a starting material.

8. I declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 21, 2008

Signature: Christy Decker

Christian Decker

132 Declaration (SML/mlg)

Exhibit A

Ciba Specialty Chemicals

Coating Effects Segment

Ciba

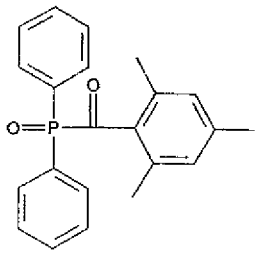
Ciba® Darocur® TPO

Photoinitiator

General

DAROCUR TPO is a highly efficient curing agent which is used to initiate radical photopolymerisation of unsaturated resins such as those based on a prepolymer - e.g. acrylates - in combination with mono- or multifunctional monomers as reactive thinners.

Chemical Composition



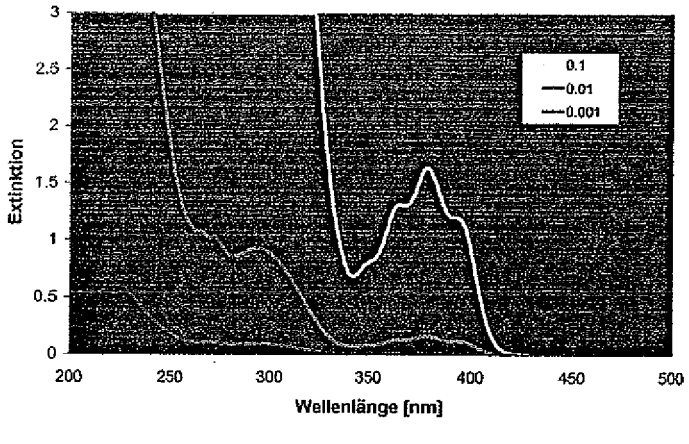
2,4,6-Trimethylbenzoyl-diphenyl-phosphineoxide

Physical Properties

Appearance:	yellow powder
Melting point:	88-92°C
Specific Gravity:	1.2 (water = 1)

Absorption Spectrum

(% in Acetonitrile)



Ciba Specialty Chemicals

Coating Effects Segment

Ciba

Ciba® Darocur® TPO

Photoinitiator

Solubility (at 22 °C)

Solvent	wt% dissolved
Acetone	47
n-butyl-acetate	25
IBOA	15
IDA	7
PEA	34
HDDA	22
TrPGDA	16
TMPTA	14
TMPEOTA	13
DAROCUR 1173	>50

Applications

DAROCUR TPO may be used after adequate testing in UV curable formulations for clear and for pigmented coatings on wood, metal, plastic, paper and optical fibers as well as for printing inks and adhesives.

DAROCUR TPO offers good solubility in common UV reactive systems, e.g. systems based on acrylates or unsaturated polyesters. It can be used as the sole photoinitiator or in combinations with other photoinitiators, like e.g. α-hydroxy ketones.

The amount of DAROCUR TPO required for optimum performance should be determined in trials covering a concentration range.

Recommended concentration:

1 - 5 % DAROCUR TPO

Safety and Handling

DAROCUR TPO should be handled in accordance with good industrial practice. Detailed information is provided in the Safety Data Sheet.

Important Notice

IMPORTANT: The following supersedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's

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Ciba® Darocur® TPO

Photoinitiator

sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Exhibit B

What Is Offset Printing?

This website was developed by Geno Jezek. When he is not doing research he operates The Advertising Store, Inc which runs www.custom-magnets.com. This site's content was researched and is all original so please honor our copyright. Thanks for stopping by.

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Offset printing is the most commonly used printing method today. Over 40% of all print jobs are carried out using offset printing.

Offset printing works in a simple manner. It uses three cylinders to transfer the image onto the substrate. The first cylinder is mounted with the printing plate. The image on the printing plate is 'right' reading or written with the right side up. The first cylinder is inked and the image transferred or offset onto the second cylinder, which is mounted with a rubber blanket. The image on the second cylinder is thus reversed or becomes 'wrong' reading. Finally the image is transferred from the blanket cylinder onto the third cylinder or the substrate. The substrate is mounted on the third cylinder also known as the impression cylinder. The image once again is reversed and becomes 'right' reading or right side up in the final printed version.

A unique characteristic of offset printing is that the image and non-image areas are on the same surface level. The printing method uses the chemical fact that oil and water do not mix to print from a single surface level. In fact, offset printing acquired this method from lithography and thus it is often referred to as litho offset printing as well.

Types Of Offset Presses

Offset presses are primarily of two types:

1. Sheet-fed Offset Printing Press: In this kind of offset press the printing is carried out on single sheets of paper as they are fed to the press one at a time.
2. Web-fed Offset Printing Press: In this kind of offset press the printing

is carried out on a single, continuous sheet of paper fed from a large roll. The sheet is then cut into individual sheets of desired sizes.

There are many more differences between the various types of offset presses.

The Offset Printing Process

The offset printing process requires a fairly large investment in equipment and set up. However, once the infrastructure is in place, offset printing itself is relatively inexpensive. There are many things to know about the offset printing process from creating the artwork to operating the press and binding.

Applications Of Offset Printing

Offset printing invades every aspect of our lives from influencing education through the printing of books, periodicals and other reading material to the packaging industry by creative printing of packages for consumer goods. The many applications of offset printing would be difficult to put down but suffice to say that the world would be a much less fun place to live in without offset printing.

Thus, offset printing is the printing technique that has made newspapers possible, books affordable and marketing and promotion the weapons of the common man.

Offset printing refers to the printing technique where ink is applied to a metal plate that is etched with images, then transferred to a rubber plate and finally imprinted on the substrate. That is just a small part of the entire offset printing process. The entire process involves the pre-press production, the actual press run and the bindery.

Creating The Artwork

The creative process can involve any number of people from graphic artists, cartoonists, copywriters, and creative directors to illustrators and editors. It is very important to proofread the entire artwork before sending for final printing. The artwork is generally sent in a digital format either on CD, floppy or via the Internet.

The Printing Process

Offset printing is something almost every commercial printer is involved in. However the quality of offset printing often depends on the experience of the printer and the equipment used. There are three main steps in the printing process.

- Pre-press Production: Once the artwork has been approved it needs to be converted to film and plates for printing. The film negatives are created from the digital files. The images from the negatives are then transferred onto the printing plates much like developing photographs. Different materials from paper to aluminum are used to produce plates. Each of the four colors – C, M, Y and K has a separate plate.
- The Press Run: Offset printing works on the principle that oil and water do not mix. The press run or offset printing process or offset press is made of the feeding system, the printing system or three cylinders, the inking system and the delivery system. There are different types of offset presses as well that are used for the press run. The press run starts with a blank substrate and ends with a printed substrate.
- Bindery: The bindery is the stage when the printed substrate is given the final treatment before it is declared ready for use. If the substrate is in the form of a large roll, it is cut into required size sheets. It is glued, bound, stapled and collated before being shipped to the final destination.

Thus, the offset printing process involves a number of stages and the hard work of many professionals. It is no wonder that offset printing is a large industry in itself and the applications of offset printing are increasing day by day.

The next time you read a newspaper, browse through a magazine or even glance at brochures in the mail spare a thought and think about what it takes to print and publish such vast amounts of information and graphics. Offset printing is responsible for almost 40% of all printed material that you see around you.

It would be difficult to create a complete list of the applications of offset printing. If something needs to be printed, offset printing can do it. Here are some examples of the applications of offset printing to get you thinking on the entire scope of offset printing.

- Newspapers are probably the most visible example of offset printing that is a part of everyone's life. Every morning you are greeted with an application of offset printing. It is to the credit of the speed of offset printing that such high volumes can be generated every single day.
- Books are another application of offset printing without which life would simply not be the same. Whether for education or entertainment, books are the life source of many a people and they have offset printing to thank for making books affordable.
- The law too has to thank offset printing for making the legal process more streamlined. Large volumes of legal forms and documents are printed using offset printing.
- Businessmen would be lost without offset printing. Important financial data is at their fingertips thanks to offset printing.
- The marketing and advertising industry would regress by centuries if it weren't for offset printing. The entire direct marketing industry would perish. Offset printing is used for printing flyers, brochures, PR material and a host of other marketing applications.

Thus, offset printing affects every aspect of our lives – social, economical, educational, professional, legal and even our relationships! Hallmark just wouldn't have the same effect without offset printing now would it?

RELATED PROCEEDINGS APPENDIX

None